A STUDY OF PREVALENCE OF ALCOHOL DEPENDENCE AMONG MALES IN AN URBAN SLUM OF NORTH CHENNAI AND THE ASSOCIATED RISK FACTORS

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CERTIFICATE

This is to certify that the dissertation titled “A study of alcohol dependence among males in an urban slum of north Chennai and the associated risk factors” was done by Dr.C. Kameshvell under the guidance of Dr.Elango, M.D., D.P.H., Director, Institute of Community Medicine’ Madras Medical College, Chennai.

This dissertation is submitted to the Tamilnadu Dr.M.G.R. Medical University towards the partial fulfillment of the requirement for award of M.D. Degree (BranchXV) in Community Medicine.

Signature of the Director

Place:

Date:

Signature of the Dean

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-Investigator

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Chapter I

INTRODUCTION

CHAPTER I

INTRODUCTION

Alcohol dependence is a disease and alcohol is the disease causing agent. Hence dependent individuals are not to be stigmatized but treated with sympathy and compassion[1].

Health is defined as a state of complete physical, mental and social well being and not merely the absence of disease or infirmity.[1]

However are we really assessing the mental well being of an individual or community like that of physical, social parameters? The answer is No.

The major mortality and morbidity producing conditions in India are[2]

1. Coronary heart disease
2. Trauma
3. Mental disorders

Thus mental disorders are the third most common cause for morbidity and mortality.

According to a study conducted by

M.V. Reddy, C.R. Chandrasekar – 1998,

The prevalence rate of various psychiatric disorders is as follows[3]

1. Psychosis (15.4 per 1000)
2. Epilepsy (4.4)
3. Mental retardation (6.0)

4. Alcohol related complications (6.9)
5. Neurotic affections (20.7)

Among the psychiatric disorders alcohol induced conditions are the third most common.

The Term alcoholism has been replaced by alcohol dependence due to derogatory nature of the former.

According to DSM IV alcohol dependence is diagnosed when 3 of the 7 signs are present namely.

- Strong desire to drink
- Withdrawal signs
- Tolerance
- Difficulty in controlling intake
- Neglect of alternate pleasure
- Narrowing of personal repertoires
- Continue drinking in spite of harmful consequence described.

There are five types of alcohol dependence namely α/β/γ/δ/ε However such divisions are of no value nowadays[4]. There is another classification where by alcohol dependence is divided into Type I and Type II. Here Type I is influenced by environmental factors whereas Type II by genetic factors.

Alcohol is a toxic / depressive substance that can affect any organ, tissue of the body. Alcohol is responsible for 20 to 30% of cirrhosis, liver cancer, epileptic seizures, motor vehicle crashes and physical assaults. Even increased incidence

of HIV infection due to unprotected sex and depression caused by family violence has been attributed to alcohol.[5]

Alcohol dependence has a great economic impact on the family, society and the whole country. Indian society is currently undergoing tectonic shift in its socio-economic fabric. The impact of globalization and liberalization appears to have influenced an attitudinal shift to greater normalization of alcohol use[6]. An alcohol dependent individual spends more than they earn, take loan to drink, leading to bankruptcy and destitution. They neglect their family, run away from home, abuse their spouse finally leading to their ostracization by family[7].

Alcohol dependent individuals lose an average of 10 to 12 years of their potential life expectancy[8]. When 46 alcohol dependent individual were followed for a 18 month period 5.5% died[9], Whereas when followed for greater period i.e., 5 years 11.3% died[9].

Alcohol dependence maybe diagnosed by some bio-chemical methods like gamma-glutamyl transferase, ALT, AST, LDH enzymes, MCV (mean corpuscular volume), breath analyzer and blood level of alcohol.

At the community level diagnosis can be made by the following screening test like CAGE, AUDIT and MASTI[10].

The WHO has announced the 2001's World Health Slogan as `Stop exclusion – Dare to care'. Identification of mental health problems in the community is those of paramount importance in reducing morbidity and mortality.

With large number of young population and large number of abstainers and due to high intensity mass marketing by liquor barons' identification of alcohol dependence, intervention, Health education is of utmost importance to prevent this rapidly growing epidemic[11].

Chapter II

OBJECTIVE

CHAPTER II

OBJECTIVE

1. To estimate the prevalence of alcohol dependence among 15 to 65 years males in urban slum of North Chennai city
2. To identify the possible risk factors associated with alcohol dependence

Chapter III

JUSTIFICATION

CHAPTER III

JUSTIFICATION

- Alcohol consumption has been steadily increasing in India and other developing countries whereas decreasing in developed countries since 1980s.
- Due to India's large population, large proportion of lifetime abstainers (89.6%) it has attracted the attention of multinational liquor companies[12].
- Profile of clients in addiction treatment centre in 23 states showed that alcohol was the first or second major substance abuses in all except one state.
- Changing social norms, urbanization, increased availability, high intensity mass marketing and relaxation of overseas trade rules along with poor level of awareness related to alcohol has contributed to increased alcohol use.
- Tax generated from alcohol production/sales is the major source of revenue in most state. However real cost of alcohol (Health care, absenteeism, reduced income level) is higher.
- Males of 15-65 years were chosen because they are the economically productive group[13]. Hence alcohol dependence in this group leads to enormous socio-economic impact.

- Slum of North Chennai was chosen because of high unemployment, migrant population, manual labourers, high risk behaviour making it a fertile ground for any substances abuse.

Chapter IV

MATERIALS AND METHODS

CHAPTER IV

METHODOLOGY

STUDY DESIGN

A cross sectional descriptive study.

STUDY AREA

B.V. Colony of Zone III in North Chennai.

STUDY TIME PERIOD

January 2007 to July 2007

STUDY POPULATION

INCLUSION CRITERIA

- Males
- Aged between 15 to 65 years
- Informed consent
- Able to converse

EXCLUSION CRITERIA

- Females
- Individuals not residing in B.V. Colony
- Not able to converse
- Deaf individuals
- Visitors

- Consent refused
- Aged above 65 years
- Seriously ill

CALCULATION OF SAMPLE SIZE

The sample size was calculated based on 13.14% prevalence of alcohol dependence among male>15 yrs of age in a study conducted at Campanas, Southeastern Brazil, with an allowable error of 20%[14].

So the sample size was calculated as

$N = [1.96]^2 \; pq/L^2$ where

1.96 → confidence limit factor

p → prevalence rate

q → (1- prevalence)

l → limit of accuracy

Here $N = \frac{[1.96]^2 \times 13.14 \times 86.86}{6.906}$

$N = 659$

The sample size is rounded off to 700.

SAMPLING MEHODS

Among 10 zones of Chennai three zones fall under North Chennai.

Of them zone III was chosen by simple random technique.

Of the 100 slums of zone III B.V. Colony was selected by simple random technique.

The selected slum had 32 streets 2780 households with the population of 14510.

By systemic random sampling even numbered streets (2, 4, 6 . . .) were chosen.

A house to house survey was conducted in all the 16 streets chosen.

762 male individuals of the age group 15-65 years were administered the questionnaire after informed consent was obtained.

Of the 762 individuals 8 were suffering from serious metal disorder, 4 suffering from serious cerebral-vascular conditions. They were excluded.

48 individuals opted out of the study when they were asked about their drinking habits. Hence 702 individuals were administered with the AUDIT questionnaire.

STUDY TOOLS

1. Basic questionnaires
2. Riskassessmentscale[15]
3. General health questionnaire[16]
4. Alcohol user dependence identification test (AUDIT) [17]

STUDY METHODS

A semi structured proforma comprising personal details like age, mother tongue, migrant status, marital status, family history of drinking, presence of peer group pressure and chronic illness was asked.

Occupation, educational qualification, income and from them socio-economic class was computed according to modified Kuppusamy Scale[18].

Then risk assessment scale was administered to the study population. When the score was > 2 then it is considered as positive.

Then Goldberg's general health questionnaire was administered. When the score was >3 then was diagnosed as psychiatric morbidity.

Then AUDIT questionnaire was administered. The AUDIT was chosen because their sensitivity is 89% and specificity is 91%. When the score is greater than 8 then diagnosed as hazardous or harmful drinking whereas diagnosed as alcohol dependent when greater than 15 in male and greater than 13 in female respectively.

Whereas CAGE/MASTI questionnaires have an sensitivity of 77% and 37% respectively.

PILOT STUDY

The AUDIT questionnaire was pre-tested by a pilot study in P.K. Gardens coming under zone 3. Necessary modification was made and the final questionnaire was prepared. It was prepared both in Tamil and English.

AUDIT

In 1980 WHO stressed on scientific methods for diagnosing person with alcoholic dependence before health / social consequence became pronounced.

In 1982 WHO collaborated project was initiated for the formulation of a scientific basis for screening / intervention in primary care setting.

Phase I of the project involving 6 collaborating centres developed a simple screening test for alcohol dependence called AUDIT[19].

It can detect both binge drinking / drinking among women which was the major short coming of CAGE questionnaire[20].

GENERAL HEALTH QUESTIONNAIRE[21]

There are two types namely GHQ – 12 and GHQ – 60 of which the formerly was most commonly used because of short time required.

They are for screening the population for the presence of psychiatric illness.

OPERATING DEFENITIONS

ALCOHOL DEPENDENCE

A cluster of behavioral , cognitive , physiological phenomenon that develops after repeated alcohol use and typically include a strong desire to take the drug , difficulties in controlling its use a higher priority given to alcohol use than to other act / obligations , increased tolerance and sometimes a physical withdrawal state.

ALCOHOL ABUSE;

A maladaptive pattern of alcohol use manifested by recurrent and significant adverse effect related to repeated use of alcohol. These problems must occur recurrently during the preceding 12 months. Generally the diagnosis is made in a individuals when the criteria for dependence has not been met.

MIGRANT;

Migrant is a person, who moves to another region / country to live or to work. In our study a person, who reside in B.V.coiony but his family lives away is called as migrant.

PEER GROUP;

Group of people of approximately the same age or status are known as peer group.

EX-SMOKER;

Those individuals, who had previously smoked but had abstained from smoking for the past 12 months.

NON-SMOKER;

Those individuals, who had never smoked are known as non-smoker.

HEAVY SMOKER;

Individuals, who smoke >20 cigarettes/bedis per day are known as heavy smoker.

MODERATE SMOKER;

Individuals, who smoke <20 cigarettes/ bedis per day are known as moderate smoker.

DRUG;

Drug is defined as any substance that when taken into the living organism, may modify one or more of its function. In our study history of psychoactive drug intake is recorded.

PSYCHOACTIVE DRUG;

Any drug capable of altering the mental function is known as psychoactive drug

STANDARD DRINK;

The standard drink in U.S.A is 9 to 13 grams of absolute alcohol whereas its equivalent considered for the study is as follow[22]

. → 1/3 of regular standard beer bottle

→ 90 ml of wine

→ 60 ml of arrack

→ 30 ml of Indian made foreign liquor

→ 200 ml of toddy

UN-SKILLED;

Work that does not require special training or skill is known as un-skilled work eg ,construction workers, porters, farm workers.

SEMI-SKILLED;

Work that required some special training or qualification but lesser that of skilled work is known as semi-skilled work. eg driver, mason, machine operators.

SKILLED;

Work that requires special training or skill is known as skilled worker.eg, electrician, plumber, mechanic.

ILLITERATE;

Any individual of >7 years of age, who cannot read and write is called an illiterate

Chapter V

REVIEW OF LITERATURE

CHAPTER V

REVIEW OF LITERATURE

The WHO world report 2001 states that 25% of the world population experience at least one episode of psychiatric affection in the life time. However they don't receive attention outside the developed world. This may be due to reasons that mental conditions are not an immediate cause of death. Hence the misery caused by mental conditions are grossly under reported.

The consumption of alcohol is increasing @ of 8% per year[23]. Whereas the age of beginning has dropped from mid-20's to an estimated 5 years. Some state like Kerala the beginning age is as low as 13 years of age[24].

PREVALENCE OF ALCOHOL DEPENDENCE

In a WHO collaborated study aimed to determine the prevalence of hazardous drinking among patients attending PHC in Australia, Bulgaria Kenya and USA it was found to be 18%, whereas 23% experienced at least one episode of alcohol related problem the previous year [25,] Where as 20% to 40 of patients admitted to GH have alcohol dependence. This translates to mortality of 4.9% i.e., 4.9% of all death are attributed to alcohol. The alcohol related death is grossly underestimated as it is not recorded in death certificate.

A study was conducted in coastal areas of Chennai affected by tsunami. The prevalence of alcohol dependence was found to be 52.8% and 74.6% are current users. This study showed association between post-traumatic stress disorders with alcohol dependence[26].

Another study conducted in a town in Nepal estimated the prevalence of alcohol dependence to 25.85%. In this study a sample of 2344 adults were administered the CAGE questionnaire[27].

A study conducted by HK Chaturvedi[28] on a representative sample of 5135 population of age greater than 10 years showed that the prevalence of alcohol dependence was 30%. In this study the alcohol dependence was found to be significantly associated with various risk factors like age, gender and ethnicity.

A study conducted by Moily etal[9] at a rural PHC using AUDIT scale the prevalence of alcohol was found to be 24%. Whereas the study conducted by Savitha Shri etal[9] using the AUDIT scale on the inpatients of Bangalore general hospital the prevalence of alcohol dependence was found to be 40% in male and 60% female.

A study conducted by Babu etal[9] using AUDIT scale the prevalence of alcohol abuse was 14.6% whereas the prevalence of alcohol dependence was 10.3%.

BURDEN ATTRIBUTED TO ALCOHOL

The annual loss due to alcohol was estimated to be Rs. 7000 to 8000 crores[9].

BURDEN OF DISEASE

- Death 112.9 [per 1000]'
- % of death 1.2%
- years of life lost 2723 [per 1000]
- % total life lost 1.4%
- years of life disabled 1974 [per 1000]

- % of total life disabled 2.3%
- DALY 4697 [per 1000]
- % of DALY 1.6%

The per capita increase of alcohol consumption had increased from 9 bottles [750ml] in 1988 to 20 bottles in 1998 showing a 114% increasing percapita consumption[9].

The following is the morbidity analysis released by NIMHANS 1994 due to alcohol

- Total medical morbidity 18.7%
- Hepatitis 15%
- Seizure 12.5%
- Road accident 12.5%
- Gastritis 50%
- Peripheral neuropathy 6%
- Hallucinosis 18%

Thus alcohol has enormous socio-economic and medical cost. The revenue generated through alcohol is less than the direct and indirect cost of alcohol related affections.

ALCOHOL DEPENDENCE AND AGE

According to a study done on prevalence of alcohol dependence in Nepal the prevalence increase with age, peaking the age group of 45 to 54 years.

People who start drinking alcohol before the age of 14 yrs are five times more likely to eventually become alcohol dependent than those who start drinking after the age of 21.The alcohol dependence occurs in young age and more number of episodes is found in them[29].

As age increase the rate of co-morbidity with physical and psychiatric illness increased. According to a study conducted on Korean older men positive association was found with alcohol dependence and age.[30] Age is found to have some influence on the drinking pattern and development of alcohol dependence.

ALCOHOL DEPENDENCE AND RELIGION

Religion is considered to play a important role in influencing the drinking pattern of the general population. Every religion has different view, opinion about alcohol intake. Islam strictly prohibit alcohol intake whereas Christianity have more liberal view and Hinduism has an intermediate view. This was reinforced by a study by Subir Kumar etal which showed that prevalence was greatest for Christians whereas lowest for Muslims[31]. According to Verma etal[32], a study conducted in Delhi showed that Sikhs were over represented with alcoholism whereas according to Khan[33] etal Christians showed greater proportion of alcohol intake.

ALCOHOL DEPENDENCE AND GENETICS

Genetics contribute to 60% of alcohol dependence i.e., when close family members drink the risk increases four fold. Identical twins have greater risk when compared with non-identical twin proving the genetic basis of alcohol

dependence. When a child of alcoholic parents is brought up in non-alcoholic environment the risk of alcohol dependence increases four times[34].

Generally mongoloids have low risk of alcohol dependence. This may be due to deficiency of ADH-I enzyme.

GABRAZ is a gene coded to be responsible for alcohol dependence. Gene-environment inter act in a complex way to cause alcohol dependence[35].

ALDH gene located in chromosome 12 is associated with decreased occurrence of alcohol dependence[36].

ALCOHOL DEPENDENCE AND MIGRANT STATUS

A study on 1576 Mexican immigrants in California was conducted to find the association between migration and alcohol dependence. Greater prevalence was found among those who were frustrated due to unemployment, labour market exclusion and discrimination.

Even though they had higher social security when compared with residence of Mexico they showed higher prevalence of alcohol dependence showing the association between alcohol dependence and migration.

Since such migrants are not covered by health insurance program and have lesser health seeking behaviour outreach program must be started to cover them[37].

ALCOHOL DEPENDENCE AND MARITAL STATUS

GABRAZ gene and marital status are known to contribute independently in the development of alcohol dependence. They act complexly to increase the intake of alcohol and alcohol dependence[38].

Marital discordance and unmarried status are social processes that increase the vulnerability for alcohol dependence[39].

ALCOHOL DEPENDENCE AND CHRONIC ILLNESS

Chronic medical conditions a like (diabetes, asthma, migraine, chronic pain, insomnia) predispose the elderly to alcohol dependence.

Patients who develop late onset drinking problems, who relapse after early drinking problems are due to self medicated attempts to alleviate the painful / uncomfortable symptoms associated with chronic medical conditions of elderly.

Chronic pain / insomnia are more frequently associated with alcohol dependence[40].

ALCOHOL DEPENDENCE AND SMOKING

A study was conducted to find the co-occurrence of smoking and alcohol in Delhi. The finding of the study was that smoking was associated with alcohol.

Smoking is the powerful predictor of alcohol usage. Hence for treating a alcohol dependence cessation of smoking is the first step[41].

The usage of alcohol during the study was higher in smokers then in non-smokers (OR=5.77 95% CI 4.3 <---> 7.1)

ALCOHOL DEPENDENCE AND DRUG ABUSE

In a study conducted in UK prisons 66% of a drug dependence inmates were dependent for alcohol also, whereas in USA the dependence was 42% for both alcohol and drug.

From the study it was found that alcohol was a most frequent substance abuse. Even in the presence of other dependence they were the most common dependence found showing that some association exist between alcohol dependence and drug usage[42].

ALCOHOL DEPENDENCE AND PEER GROUP PRESSURE

When peers drink, due to the desire to belong to them there is increased pressure to drink. However only peer group pressure is an incomplete explanation for adolescent alcohol use[43].

Increased alcohol use in adolescent age group leads to increased violent behaviour, anti-social tendency, falling tolerance level and rising anger leading to urban rage. Desire to be popular among peers, conforming to certain norms easy availability of alcohol makes an individual vulnerable to alcohol usage[44]

ALCOHOL DEPENDENCE AND PSYCHIATRIC ILLNESS

The co-occurrence of alcohol dependence and psychiatric illness is very common. Nearly 50% of alcohol dependent has concurrent psychiatric affection. A total of 105 alcohol dependent individuals were examined for psychiatric co-existing disease and gambling axis I disease was the most common found in 74% followed by depression, social phobia and stress disorders.[45].

Overlap of genes responsible for alcohol dependence and psychiatric illness maybe the explanation for increased association between them.

Sometimes the symptoms of psychiatric illness maybe reduced with alcohol intake. This may be another reason for increased association[46].

Alcohol dependence is increased in individuals with history of conduct disorder and major depression[47].

In a study conducted on 20191 population of the age group > 15 years of age from 1980-1984 the following finding were found.

Mood disorder among alcohol dependence showed a OR = 6.9

Depression was found in 27.9% of the population i.e., it was increased 3.9 fold.

Anxiety was found in 39.6% of the population. i.e.,

11.6% - Generalized Anxiety disorder

3.9% - Panic attack

7.7% - Post traumatic stress disorder

both GAD and PTSD showed significant difference between alcohol dependent individual and non-alcoholic.

The lifetime risk of schizophrenia was increased to 14% i.e., 3.8 fold[48].

ALCOHOL DEPENDENCE AND HIGH RISK BEHAVIOUR

Many studies had found the linkage between alcohol dependence and high risk behaviour. However only a few study have showed the direct linkage between them[49].

Absence of vice during Shravana (Hindu) and Ramadan (Muslim) had decreased the intake of alcohol and high risk behaviour showing that they have direct / indirect relation[50].

The reasons for strong association between alcohol dependence and high risk behaviour are

- difficult to engage oral sex without alcohol
- commercial sex workers (CSW) demand alcohol for them
- belief that one visit an CSW only after consuming alcohol[51].

The reason for associated between alcohol dependence and high risk behaviour maybe the sensation seeking personality among alcohol dependence[52].

Even though there is association, such association is complex and multiple variables interplay[53].

Generally population classified as heavy drinkers are more likely to indulge in sexual act outside marriage, have multiple sex partners and get involved in sex trading.

ALCOHOL DEPENDENCE AND OCCUPATION

Occupation like journalist, postal workers, police, sailors, bartenders, restaurant workers and painter have higher rate alcohol dependence then other workers.

According to a study conducted by Detroit et.al. The alcohol dependence was found in blue collared occupations like craft workers, labourers, service workers, machine operators and white collared occupation like managers among women and sales worker among men[54].

ALCOHOL DEPENDENCE AND EDUCATION

Alcohol dependence was generally believed to be found in individuals with lower level of education. This belief was supported by the WHO report[55].

According to a study conducted in Nepal alcohol dependence was more common among population with lower level of education. The study showed that alcohol dependence was associated with education.

ALCOHOL DEPENDENCE AND INCOME

It was believed that alcohol and alcohol dependence is higher among individuals of below the poverty line. This myth was found to be true by the studies conducted to find the association between alcohol dependence and income[56].

According to a study conducted in USA household income was positively associated with alcohol dependence i.e.,

$ 20,000 - $ 35,000	OR = 1.4	$p < 0.0001$
$ 35,000 - $ 69,999	OR = 1.6	$p < 0.0001$
> $ 70,000	OR = 3.2	$p < 0.0001$

When the individual is insured the prevalence of alcohol dependence was increased[57].

Chapter VI

RESULTS AND DISCUSSION

CHAPTER – VI

RESULTS AND DISCUSSION

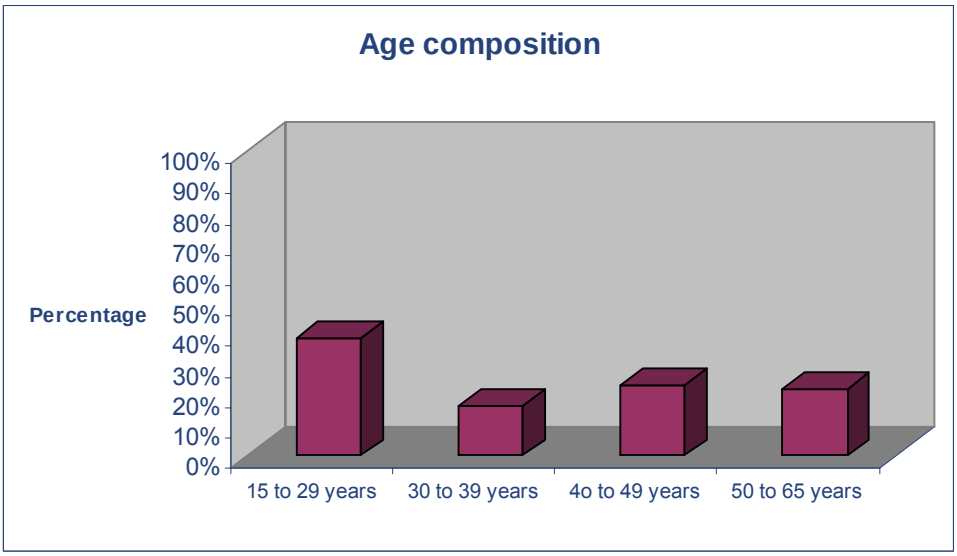
CHARACTERISTICS OF THE STUDY POPULATION

AGE COMPOSITION

The age of the study population ranged from 15 to 65 years of age. Dividing them into 4 categories there are 272 in 15 - 29 age groups making it the largest category. Where as 30-39 age groups is the smallest category having 114 individuals.

The age composition has been computed in the Figure – I.

Figure-1



RELIGION

In the study population 588 were found to be Hindus constituting 84% whereas 60 were Christians forming 8.5% of the population. Muslims formed the remaining i.e., 7% of the population. This demography was similar to the overall

religious composition of Tamilnadu were Hindus formed 88% of the populations. The religious composition has been represented in Table-1.

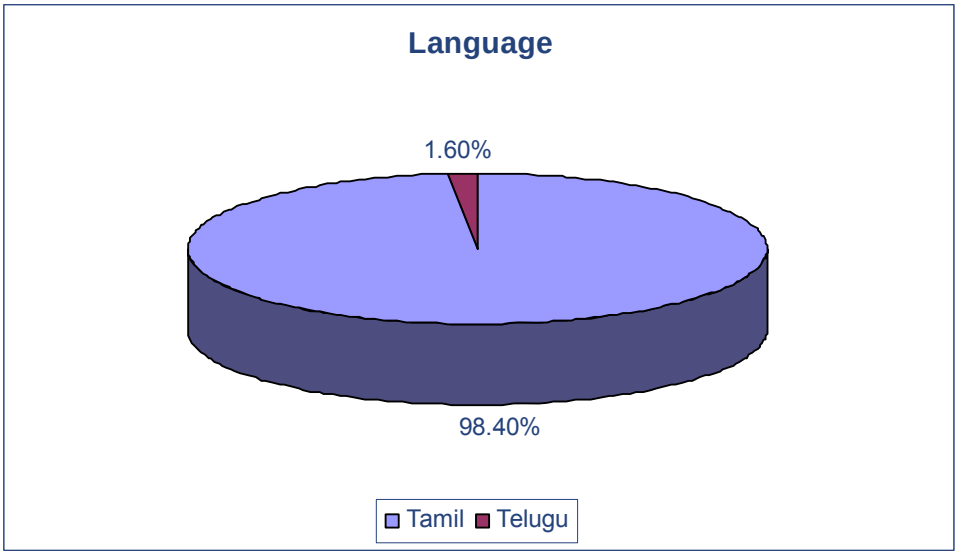
Table-I Religious composition

Religion	No.of Individuals	Percentage
Hindu	588	84%
Christian	60	8.5%
Islam	52	7.5%

MOTHER TONGUE

The population was interview about the mother tongue. Only two languages where noted namely Tamil and Telugu which has been represented in Figure-2

Figure-2



MARITAL STATUS

In the study population 66.3% were married. Of the married people 3 were divorced, 12 were separated and 27 were widowed. 33.7% of the study population remained unmarried. The high number of unmarried persons may be due to high number of students in the study population. The marital status of the study population has been represented in Table – 2.

Table-2

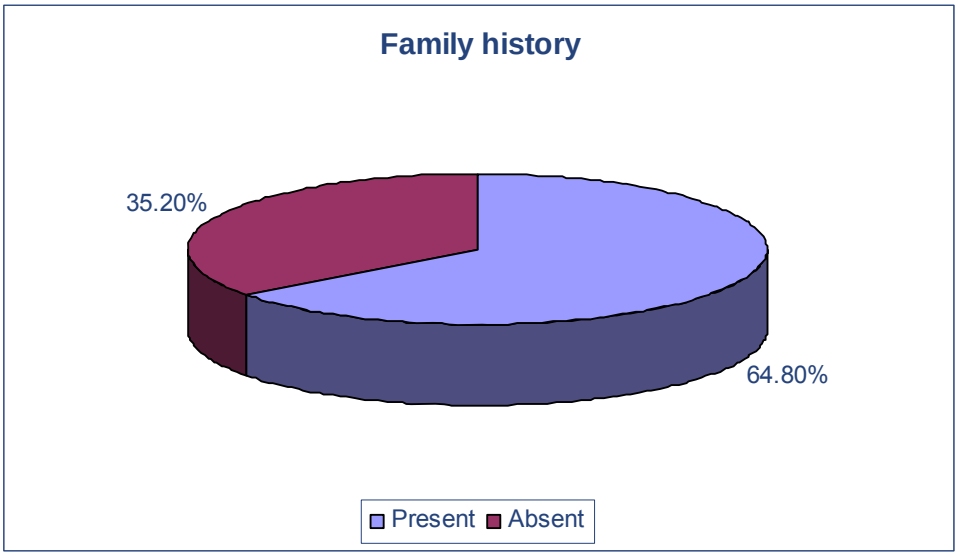
Marital status of the population

Marital Status	No.of Individuals	Percentage
Married	422	60.2
Widowed	27	3.88
Separated	12	1.7
Divorced	3	0.42
Unmarried	236	33.7

FAMILY HISTORY

The study population was interview about the drinking habits of his father/mother/sibling. Nearly 64.8% of the study population had family history of drinking where as the remaining had no such history. The family history of the study populations has been represented in the Figure-3

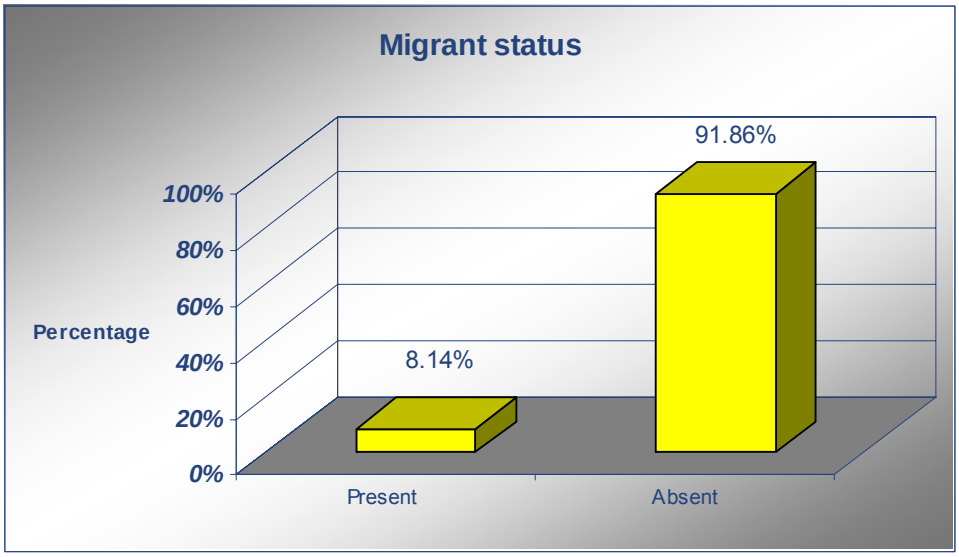
Figure-3



MIGRANT STATUS

The study population was interviewed about that migrant status. When the individual lives away from the family, he is considered as a migrant. Where as when he lived with the family then considered as a resident. The migrant population constituted 8.14% of the study population. The migrant status of the study population has been represented in Figure-4.

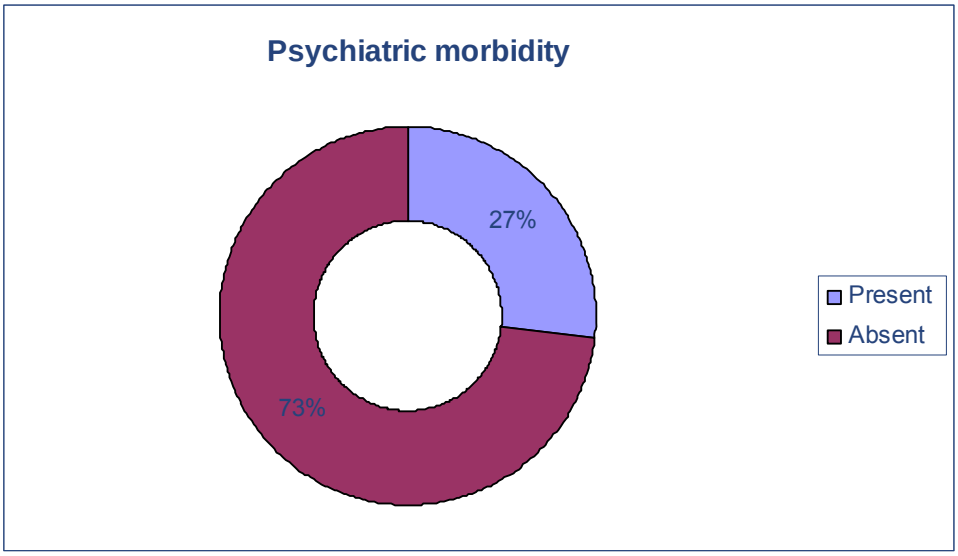
Figure-4



PSYCHIATRIC MORBIDITY

When the cut off > 3 is taken 27% of the study population was diagnosed with some psychiatric morbidity. This was similar to the WHO World report 2001 which states that 25% of the world population suffered at least one episode of psychiatric affection during their life time. The psychiatric morbidity of the study populations has been represented in Figure-5

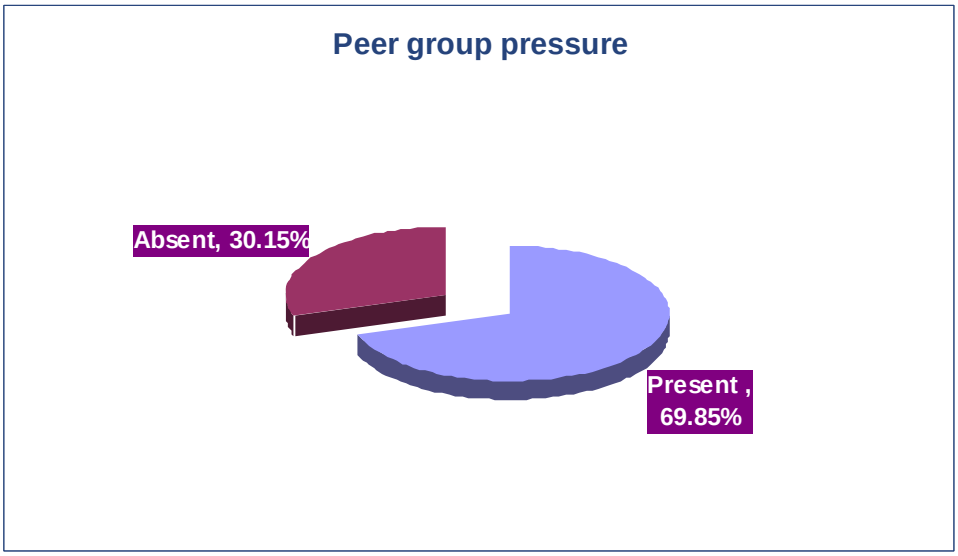
Figure-5



PEER GROUP PRESSURE

The presence of peer group pressure i.e., having friends with drinking habits was found to be 69.85% among the study population. The peer group pressure in the study populations has been represented in Figure6.

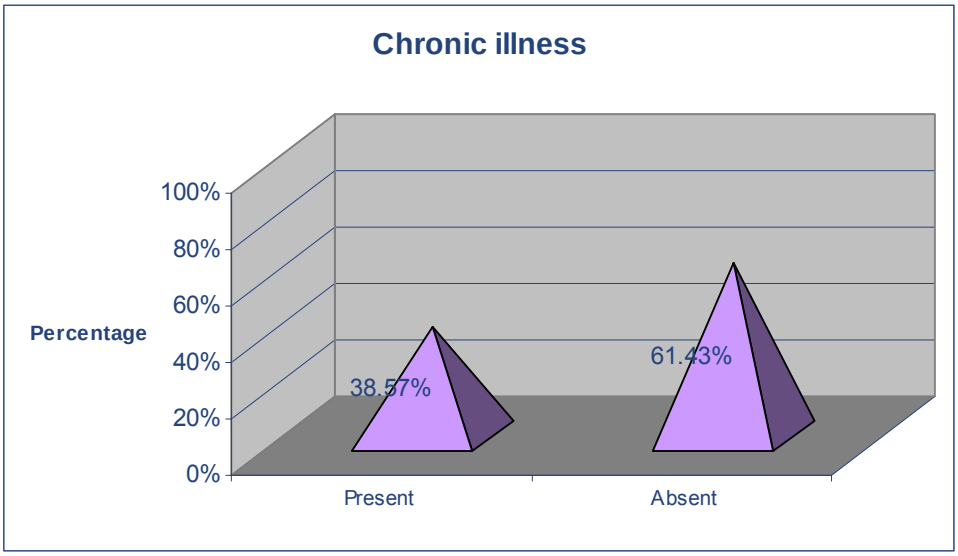
Figure-6



CHRONIC ILLNESS

Here conditions like Diabetes, Asthma, Chronic pain, insomnia and migraine were considered as chronic medical conditions. 270 individual of the study population had some chronic morbidity constituting 38.5% of the study population. The chronic illness in the study population has been represented in Figuret-7.

Figure-7



EDUCATION QUALIFICATION

Nearly 95% of the study population is literate which is higher than the state's male literacy which was 82.4%[58]. Even though the study population is highly literate only 9.68% had attended college. The middle school level of education constitutes the major bulk i.e., 25.4% of the study population, Followed by high school level of education which constituted 23.7% of the study population. The education status of the study population has been represented in Table-3.

Table-3

Educational qualification of the population

Education qualification	No.of individuals	Percentage
Post-graduate	6	0.88
Graduate	62	8.8
Intermediate	121	17.2
High school	166	23.7
Middle school	178	25.4
Primary	132	18.8
Illiterate	35	5.0

OCCUPATION

In the study population the unemployment level is quiet high i.e., 12.2% of the study population is unemployed. Students form a significant proportion of the study population. i.e., 17.2%. However the largest constituent of the study populations is semi-skilled personals.

Not even a single professional were interviewed whereas only 11 semi professional were interview. This may the reason for absence of class I in the

study population. The occupation of the study population has been represented in Table – 4

Table-4

Occupation

Occupation	No.of individuals	Percentage
Professional	0	0
Semi-professional	11	1.5
Clerical/Shop-owners	149	21.2
Skilled	40	5.7
Semi-skilled	184	26.2
Unskilled	109	15.5
Unemployed	86	12.2
Students	121	17.2

SMOKING HISTORY

The smoking history of the study population was taken for the past 1 year. When it was absence for the preceding one year it is considered as non-smoking / Ex smoking. When smoking history was completely absent it is non-smoking whereas when it is absence for the past one year it is considered as Ex-

Smoking. Smoking has been divided into 2 categories namely moderate and heavy smoking. When more than 20 cigarettes were smoked per day it is considered as heavy, whereas when less than 20 it is moderate. 28.7% of the population smoked of which 8.4% were heavy smokers and 20.3% were moderate. This was greater than the prevalence found in the APAC sponsored study[59]. The smoking history of the study population has been represented in Table-5.

Table-5

Smoking history of population

Smoking History	No.of individuals	Percentage
Non-smoker	356	50.8
Ex-smoker	143	20.14
<20/day	142	20.2
>20/day	59	8.4

SOCIO-ECONOMIC CLASS

Based on the modified Kuppusamy Scale the population was divided into five socio-economic class considering education qualification, occupation and income. In the study population no individual belonging to class 1 was

interviewed. Class IV formed the major bulk of the study population. i.e., 50.8% followed by class III which constituted 34.4%. The lowest class i.e., class V formed only 4% of the population where as class II formed 10.7%. The Socio-economic class of the study population has been represented in Table-6.

Table-6

Socio-economic class

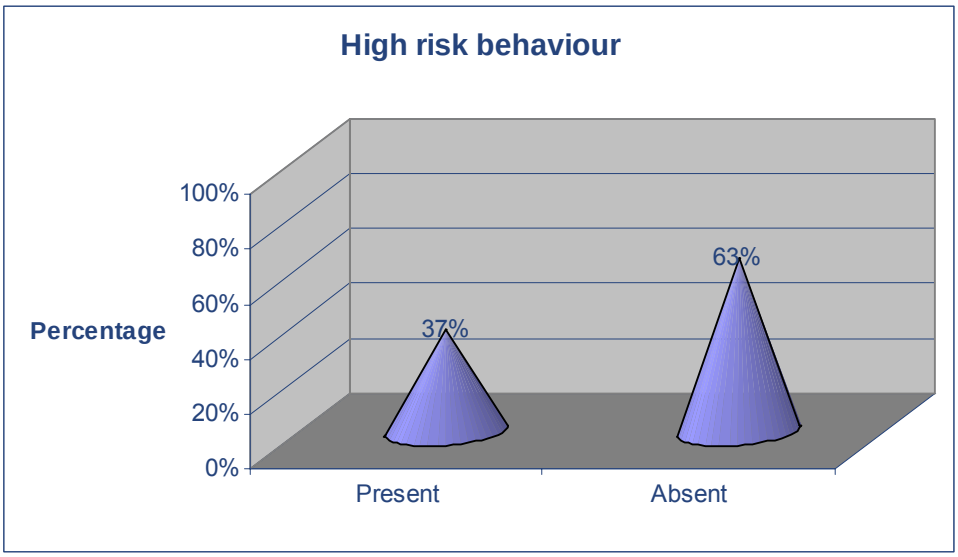
Socio-economic Class	No.of individuals	Percentage
Class-I	0	0
Class-II	75	10.7
Class-III	241	34.4
Class-IV	356	50.8
Class-V	28	4

HIGH RISK BEHAVIOUR

Based on the risk assessment scale population > 2 were considered positive for high risk behaviour. In the study populations 259 individuals' i.e, 37% had high risk behaviour which higher than that found in the APAC sponsored study[59] where it was 26%. This high percentage maybe due to large 15-19 year age group in the study population because according to the scale when age < 21 years one point is given. Even high unmarried population proportion maybe a

factor for the high percentage. The high risk behaviour in the study population has been represented in the Figure-8.

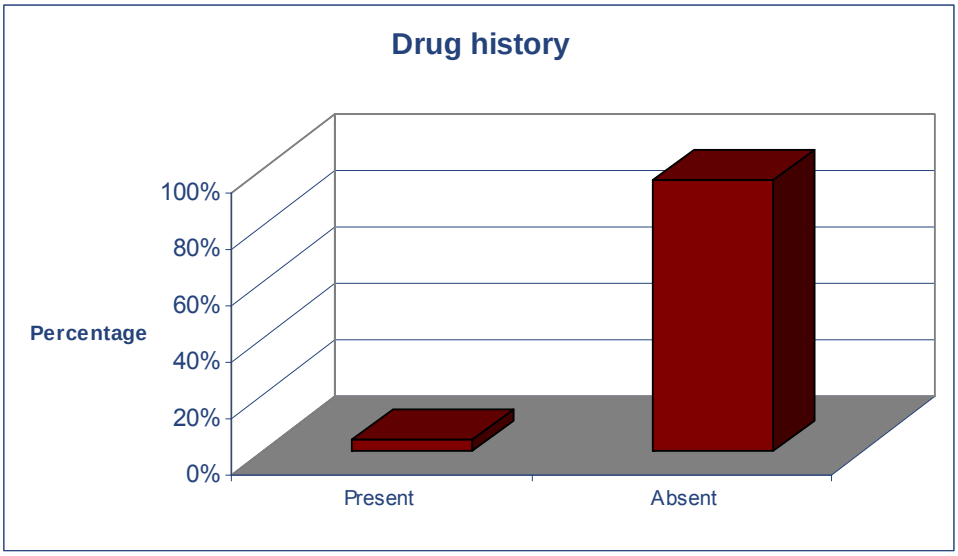
Figure-8



DRUG HISTORY

Around 4% i.e., 28 of the study population were using drugs of them, 27 smoke ganja and the remaining used intravenous route of drug administration. The remaining 96% of the study population did not used drugs. The drug history of the study population has been represented in Figure-9.

Figure-9



PREVALENCE OF ALCOHOL DEPENDENCE:

The prevalence of alcohol dependence was found to be 6.57%, whereas the prevalence of hazardous drinking was 9.8%. 45.71% of the study population had consumed alcohol in their life time. Current users excluding dependent population was 38.57%.

Since for discussion /analysis only alcohol dependent population was considered

Non-users, ex-users, current users including hazardous drinking were clubbed as non-dependent population.

The high proportion of lifetime users (including ex-users, current users, hazardous drinking and dependence) is of serious concern which must be addressed by health providers. The prevalence of alcohol dependence in the study population has been represented in Table – 7.

Table-7

Prevalence of alcohol dependence

Inference	Score	Frequency	Percentage
Non-users	0	380	54.3
Hazardous drinkers	>=8	69	9.85
Alcohol dependent	>=15	46	6.57
Current users	1-7	201	28.7
Ex-users		4	0.57
Life time users		320	45.7

ANALYSIS

AGE AND ALCOHOL DEPENDANCE

The prevalence of alcohol dependence was greatest in the 40-49 years age group where it was 22.1%.The prevalence was least in the 15-29 years age group where it was only 0.36%. Whether the difference in the prevalence was due to chance (or) real difference was analyzed by chi-square test and which was found to be significant (Table-8).

Table-8

Alcohol dependence & Age

Age in years	Alcohol dependence present	Alcohol dependence absent	Total
15-29	1	272	272
30-39	11	103	114
40-49	29	131	160
50-65	5	149	154
	46	654	700

Chi-square=53.85 D.F=3

P<0.001 highly significant

ALCOHOL DEPENDENCE AND RELIGION

The prevalence of alcohol dependence among Christians was 21.6% which is higher than the total prevalence. This high may be due to the liberal view concerning alcohol intake among Christians. The prevalence among Hindus was 5.4% were as among Muslims it was just 1.92%. Whether this difference was true or due to chance was analyzed by chi-square test and was found to be true. (Table-9)

Table-9

Alcohol dependence & Religion

Religion	Alcohol dependent	Alcohol non dependent	Total
Hindu	32	556	588
Christianity	13	47	60
Islam	1	51	52
	46	654	700

Chi-square = 24.4 D.F = 2

P < .001 highly significant,

ALCOHOL DEPENDENCE AND MARITAL STATUS

The prevalence was greatest in divorced individuals where it was 33.3%, whereas for separated individuals it was 16.6% followed by the widowed individuals who had 14.8%.The prevalence in married and together living individuals were 8.5%. But it was only 1.27% among unmarried which was contrary to the belief that alcohol dependence was common in single living individuals. When analyzed the difference was found to be statistically significant. (Table-10)

Table-10

Alcohol dependence & Marital status

Marital status	Alcohol dependence present	Alcohol dependence absent	Total
Married	36	386	422
Unmarried	3	233	236
Divorced	1	2	3
Separated	2	10	12
Widowed	4	23	27
	46	654	700

P<0.01 D.F=4

Significant Chi-square=17.28

ALCOHOL DEPENDENCE AND MIGRANT STATUS

The prevalence of alcohol dependence was 29.8% among migrants when with non-migrants where it was 4.81%. The difference in the prevalence was analyzed and it clearly showed that migrant status was significantly associated with alcohol dependence. It may be due to frustration arising from unemployment, home sickness, discrimination etc. (Table-11)

Table-11

Alcohol dependence & Migrant status

Migrant status	Alcohol dependence present	Alcohol dependence absent	Total
Present	17	40	57
Absent	29	614	643
	46	654	700

Chi-square=49.73 D.F=1

P<0.001 highly significant

ALCOHOL DEPENDENCE AND FAMILY HISTORY

The prevalence of alcohol dependence in population with family history of drinking was 3.3% whereas it was 12.6% among population without family history. The finding was contrary to the popular myth that alcohol dependence was more common among individuals with at least one drinking family member. When analyzed it was found to be statistically significant (Table-12)

TABLE – 12

Alcohol dependence & Family history

Family History	Alcohol dependence present	Alcohol dependence absent	Total
Present	15	439	454
Absent	31	215	246
	46	654	700

Chi-square=23.06 D.F=1

P<0.001 highly significant

ALCOHOL DEPENDANCE AND PEER GROUP PRESSURE

The prevalence of alcohol dependence in population who has friends who drink was 8.17% whereas the prevalence in population who don't have such friends was 2.8%. When analyzed the difference between groups was found to be statistically significant (Table-13)

Table-13

Alcohol dependence & Peer group

Peer group pressure	Alcohol dependence present	Alcohol dependence absent	Total
Present	40	449	489
Absent	6	205	211
	46	654	700

Chi-square=7.03 D.F=1

P<0.01 Significant

ALCOHOL DEPENDENCE AND CHRONIC ILLNESS

The prevalence of alcohol dependence in population with chronic illness was found to be 4.08%. In population without such affection the prevalence was 8.14% which was not expected as most studies conducted worldwide showed that prevalence was greater among population with chronic medical condition. When analyzed the difference was found to be significant (Table-14).

Table-14

Alcohol dependence & Chronic illness

Chronic illness	Alcohol dependence present	Alcohol dependence absent	Total
Present	11	259	270
Absent	35	395	430
	46	654	700

Chi-square=4.78 D.F=1

P<.05 significant

ALCOHOL DEPENDENCE AND PSYCHIATRIC MORBIDITY

The prevalence of alcohol dependence in population with underlying psychiatric affection was found to be 17.9%. The prevalence in population with no such affection was 2.34%.The reason for higher rate may due to the tendency of psychiatric patients to intake alcohol to alleviate the symptoms. When analyzed the difference was found to be significant (Table-15).

Table-15

Alcohol dependence & Psychiatric illness

Psychiatric illness	Alcohol dependence present	Alcohol dependence absent	Total
Present	34	155	189
Absent	12	499	511
	46	654	700

Chi-square=58.28 D.F=1

P<.001 highly significant

ALCOHOL DEPENDANCE AND SMOKING

The prevalence of alcohol dependence among non-smokers was found to be 4.77% whereas it was 4.19% among ex-smokers, who were individuals who abstained from smoking in the preceding year. The prevalence in smokers was 11.4%. When the smoking was divided into moderate and heavy smokers greater prevalence was found in heavy smokers were it was 30.5%. The difference between the four categories was found to be significant (Table-16).

Table-16

Alcohol dependence & Smoking

Smoking history	Alcohol dependence present	Alcohol dependence absent	Total
Non-smoker	17	339	356
Ex-smoker	6	137	143
<20/day	5	137	142
>20/day	18	41	59
	46	654	700

Chi-square=58.28 D.F=3

P<.001 highly significant

ALCOHOL DEPENDANCE AND DRUG HISTORY

The prevalence of alcohol dependence in population who use drug was 21.4% whereas in population who don't use drug was 5.95%. Generally alcohol was considered as gate way substance i.e., those who drink alcohol experiment with other drugs. When analyzed the difference was found to be statistically significant (Table-17).

Table-17

Alcohol dependence & Drugs

Drug history	Alcohol dependence present	Alcohol dependence absent	Total
Present	6	22	28
Absent	40	632	672
	46	654	700

Chi-square=9.94 D.F=1

P<.01 significant

ALCOHOL DEPENDANCE AND HIGH RISK BEHAVIOUR

The prevalence of alcohol dependence in population with high risk behaviour was just 1.54% which was very meager when compared with those who don't have such behaviour who had 9.5%.This was not what we expected . The reason for such unexpected finding may be high proportion of students who have good knowledge about safe sex. The student community also had lower prevalence of alcohol dependence because of economic dependence on their parents. The difference was found to be significant (Table-18).

Table-18

Alcohol dependence & High risk behavior

High risk behaviour	Alcohol dependence present	Alcohol dependence absent	Total
Present	4	255	259
Absent	42	399	441
	46	654	700

Chi-square=16.85 D.F=1

P<.01 significant

ALCOHOL DEPENDENCE AND EDUCATIONAL QUALIFICATION

The prevalence of alcohol dependence was very high in population with primary level of education being 13.6%. The prevalence was lowest among those with high school level of education being 3.6%.Generally the rate is lower in population with higher level of education (post-graduation, graduation and intermediate), whereas it was greater among population with lower level of education. The difference was found to be significant (Table-19).

Table-19

Alcohol dependence & Education

Educational qualification	Alcohol dependence present	Alcohol dependence absent	Total
Graduate	6	56	62
Intermediate	5	116	121
High school	6	160	166
Middle school	11	167	178
Primary school	18	114	132
	46	613	659

Chi-square=12.01 D.F=4

P<.01 significant

ALCOHOL DEPENDENCE AND OCCUPATION

The clerical/shop owners' population had the highest number of dependent individuals whereas the skilled had the lowest number. The prevalence rate was greatest in clerical/shop owners with 15.43%, whereas the rate was lowest

among the skilled laborers being 0.026%. This was contrary to the myth that as greater physical exhaustion was seen with unskilled work, the rate must be high among them. (Table-20)

Table-20

Alcohol dependence &Occupation

Occupation	Alcohol dependence present	Alcohol dependence absent	Total
Clerical/Shop owner/Farmers	22	127	149
Skilled	1	39	40
Semi-skilled	10	174	184
Un-skilled	11	98	109
Unemployed	2	84	86
	46	522	568

Chi-square=16.59 D.F=4

P <.001 highly significant

ALCOHOL DEPENDENCE AND SOCIO ECONOMIC STATUS

Based on modified Kuppusamy's scale the population was divided into five classes. The study area being a urban slum most of the study population to class

III and IV respectively. No individual belonging to class-I was interviewed. The prevalence was highest for class-V being 17.8% whereas lowest for class-IV were it was only 5.05%. The difference of prevalence between the various classes was not found to be statistically significant which was unexpected (Table-21).

TOTAL-21

Alcohol dependence & Socio-economic status

Socio-economic class	Alcohol dependence present	Alcohol dependence absent	Total
Class-II	6	69	75
Class-III	17	224	241
Class-IV	18	338	356
Class-V	5	23	28
	46	654	700

Chi-square=3.43 D.F=3

p>.05 not significant

DISCUSSION

The study was carried out in B.V. Colony which is a designated urban slum in zone III of North Chennai to estimate the prevalence of alcohol dependence and also to ascertain whether the so called risk factors described in various literature were significantly associated.

First the purpose of the study was explained to the study population and informed consent was obtained. Out of the 762 included in the study 702 were interviewed the response rate being 92.1%.Such high rate is difficult to obtain in a community based study but due prior sensitization thorough health education the study population participated with interest. Since the questions were of delicate nature complete confidentiality and empathy was maintained.

The age group 15-65 years was chosen because it is the economically productive age group. When they are affected by alcohol dependence both the family and the nation suffer. The AUDIT scale found that 320 of the 700 study population are life time users of alcohol constituting 45.7%of the study population. The Alcohol dependence among lifetime users was 14.37% which was less than that found in the Chottanhally study.

The prevalence of hazardous drinking was 16.4% which is comparable with the study conducted in urban slum of Chottanhally where it was 13.14%.

The prevalence of alcohol dependence was low when we considered the study conducted in tsunami affected coastal population of Chennai were it was as high as 52.8%. Here the high rate was due to post traumatic stress disorder.

The prevalence of alcohol dependence in the study was higher when compared with study conducted by Nenfeld K.J. where it was only 4.5%.

The prevalence was lower to the one conducted by Ray[60], 2004 where it was 17%.

From the table it is observed that 40-49 years age group is the peak age group for alcohol dependence where 63.04% of the total alcohol dependence was found. This of concern as this age group is the most productive group. The serious nature of the matter can be observed that even though they constitute only 23% of the study population they form 63% of the alcohol dependence.

The prevalence of alcohol dependence was greatest among Christians followed by Hindus were as it was negligible among Muslims. This was in concordance with the study by B.K.Verma.

Generally migrants were found to have greater prevalence of alcohol dependence because of frustration, unemployment, discrimination associated with migration. In the study the prevalence was 29.8% among migrants which was only 4.51% among non-migrants. The difference was found to be significant.

Marriage was considered as a immunity to most mental affections especially alcohol related conditions. Single status, divorcee, widower and separated individuals are considered as risk factors for alcohol dependence.

In the study the prevalence was higher among above mentioned risk factors, however in the study the unmarried did not show higher rate.

In the study both smoking and drug history were found to be statistically significant endorsing most studies. 28.7% of the study population smoked of which 8.4% were heavy and 20.3% moderate smokers, which was greater than that found in the APAC study.

When we looked for association for chronic medical conditions with alcohol dependence we found it to be significant.

The role of chronic medical conditions with alcohol dependence had been studied in various parts of the world and they have been implicated as both the cause and complication of alcohol dependence.

The prevalence of underlying psychiatric affections was 27% which is lower than the Pothens etal[61] study were it was 33.9%.

The association between alcohol dependence and psychiatric co-morbidity was found to be statistically significant. The increased prevalence may due to the fact that psychiatric patients tend to take alcohol to alleviate the symptoms arising due to them.

The association between alcohol dependence and high risk behavior was significant. In the study population, 259 individuals i.e, 37% had high risk behavior which is higher when compared with the APAC sponsored study. However multiple factors may interplay to have a complex effect on alcohol intake and dependence.

No statistically significant association was found with occupation/socio-economic condition and alcohol dependence which was totally unexpected. Most of the

studies conducted across the world showed significant association of alcohol dependence with both the above risk factor.

The presence of liquor shop in the locality, flexible time of availability[62], low cost and availability of bar facilities are associated with increased drinking and dependence. Whereas increasing minimum age limits, heavy taxation, monopolizing production and sales, rationing sales[63] and advertising restriction[64] decreased drinking and dependence. The above mentioned factors were not considered in the study.

Chapter VII

SUMMARY

SUMMARY

Mental illness are grossly under diagnosed and under reported in primary care setting. Alcohol dependence is even more grossly under diagnosed due to personal and social stigma associated with it. Many epidemiological studies have been conducted in the past to identify the prevalence of alcohol dependence and various associated factors.

In our study, B.V colony was chosen which is an designated slum in zone III of North Chennai. 700 individuals belonging to various socio-economic Class was chosen by house to house survey.

A semi structured basic questionnaire was constructed which included details like personal history and socio economic parameters.

Risk assessment scale, general health questionnaire and AUDIT questionnaire were administrated to the study population and the results were tabulated.

The prevalence of lifetime users and alcohol dependence was found to be 45.7% and 6.57% respectively. Whereas the prevalence for current users was 45.1%

The prevalence of alcohol dependence was greatest in the 40-49 years age group where it was 18.13%. Even though the 15-29 years age group was the largest constituent the prevalence was only0.37% among them.

Migrants showed a greater prevalence of 29.8% when compared with non migrants who showed a prevalence of just 4.81%.

Prevalence was higher among separated, divorced, widowed and married living together individuals when compared with unmarried population. This may be due to high proportion of students among the study population.

Both psychiatric morbidity and education were statistically significant. Smoking, drug usage and high risk behavior were also associated significantly.

Only socio-economic class was not significantly associated with alcohol dependence.

Most of the results were in concordance with various Indian and international studies.

Chapter VIII

RECOMMENDATIONS

RECOMMENDATIONS

- School based alcohol educational program that emphasis on abstention or at least on delaying the age of start of drinking must be implemented.
- Providing and encouraging alternative activities
- Insulating users from harm ie by mandatory use of helmets, seat belts, air bags and improving general road safety.
- Regulating the availability and conditions of use
- Involving social and religious movements like alcoholic anonymous and other non governmental groups.
- Sensitization / training of medical and paramedical personals in identifying alcohol dependence at the primary care level.
- Establishing a specific treatment system for alcohol related problems.

Chapter IX

LIMITATIONS

LIMITATIONS

- The study is a cross-sectional study, hence the significant of relationship between alcohol dependence and associated factors should be considered with caution.
- The study was conducted in a urban slum of North Chennai so the findings cannot be extrapolated to the general population.
- Biological markers of alcohol dependence could have been studied to corroborate the diagnosis.
- Important factors like number of liquor shops in the locality, its distance, time of availability, presence of bar facilities which influence the drinking habits of any population was not studied.

REFERENCE

REFERENCE

1. Park's Textbook of preventive and social medicine,17th edition-page 688

1. Park's Textbook of preventive and social medicine,17th edition-page 17

2. WORLD HEALTH REPORT 2001; MENTAL HEALTH

3. M.V. Reddy and C.R.Chandrasekar; prevalence of mental and behavioral disorders in India- A meta analysis

Indian journal of psychiarty40; 149, 1998

4. A short textbook of psychiatry; Niraj Ahuja, 5th edition- page37

5.Margot Cogen; India's alcohol trap-probing the link between hazardous drinking and poverty, Disease control priorities project, November 15, 2006

http//www.dep2.org/features/20

6. Vivek Benegal; India- Alcohol and public health, The Globe 2005, issue2

http//www.ias.org.UK/resource/publication/the globe/globe 2005

7. Consequence of alcohol use. http//www.searo.WHO int/link file/fact and Figure

8. http//www.lifespan.org/adam/indepthreport/10/000056

9. Desai 1989; Model district program for prevention of alcohol and drug problem in the community-released by WHO/Ministry of health, govt. of India.

9. Sharma, Murthy, 1998; reference above

10. A short textbook of psychiatry; Neraj Ahuja, 5th edition, page-39.

11. Alcohol related harm in India- A fact sheet released by Indian alcohol policy alliance and T.T.Renganathan clinical research foundation, Chennai

12. V.Benegal, A.Velayutham, S.Jain, 2000; Social cost of alcoholism, a Karnataka perspective, NIMHANS, journal, 18, volume [1&2] page-67.

13. Park's textbook of preventive and social medicine, 19th edition, page-383.

14. Marilisa Berti de Azeverdo Barros, Neury Jose Botega etal; Prevalence of alcohol dependence and associated factors in a population based study, Revisita de Saude Publica August 2007. http//www.scielo.br/scielophp.script/

15. Clinical practice in STD by A. Macmillan, H. Young, M.M. Ogilive and Scott page-17.

16. British journal of psychiatry; general health questionnaire-12 [Goldberg 1978].

17. Screening and brief intervention for alcohol problem in primary health care-www. WHO international/ substance/ activities/ environment/ burden

18. Nutrition and child development by K.E.Elizabeth, appendix page-339.

19. WHO guide to mental health for primary care-// www. /Mental neurological primary care. Org/

20. Current medical diagnosis and treatment 2004, page-17

21. Kaplan's comprehensive textbook of psychiatry, volume-I, 6th edition, page-620.

22. Melvin Chagas Silva, Gaurish Gaunekar etal;The prevalence and correlates of hazardous drinking in industrial workers- a study from Goa, India, Alcohol & Alcoholism, vol:38, no.1, page79-83, 2003. Http//www.alcalc.oxfords journals.org/cgi/regiment.

23. Reference no.11

24. Indian alcohol trap; probing the link between hazardous drinking and poverty November 15, 2006-/ www. Dip2.org /

25. John Saunders, Olaf Aasland, Amundsen and Marcus Grant : Alcohol consumption and related problems among PHC patients, WHO collaborated project on early deduction of persons with harmful alcohol consumption http//www.blackwell-synergy.com/doi/abs/10-1111/j1360-0443

26. Prof. L.S.Manickam, Joshi, Basil- Alcohol abuse among coastal areas in Chennai district-/ www. Tntrc. Org /

27. H.K.Jhingan; Prevalence of alcohol dependence in a town in Nepal assessed by CAGE questionnaire-Addiction 98[3] march 2005.

28. H.K.Chaturvedi, J.Mahenta; Socio-cultural diversity and substance abuse pattern in Arunachal Pradesh volume-74, issue-1, April 2004.

29. Ralph Hingson, Timothy Heeren, Michel Winter : Age at drinking onset and alcohol dependence, Archive of pediatrics and adolescent medicine, Vol:160, No.7, July 2006, 739 – 745.

30. Jae thin kim, sheon shin, Robert Steward: Alcoholism in olden Korean men prevalence, etiology and co-morbidity with cognitive impartment and dementia, International journal of geriatric psychiatry Vol.17, issue 9 page 821-827

31 Subir Kumar, V.Balakrishnan, M.Vandana; Alcohol- Its health and social impact in India, National medical journal of India, Vol.19, no.2, March2006. Http//www.nmji.in/archives/vol19/

32. B.K.Verma; Extent and pattern of alcohol use and alcohol related problems in North India, In current research in drug abuse in India, Mohan etal, 1981.

33. Khan; Capability of inmates and their interest in work program at the central prison, Madras, Indian journal of social work 1978.

34. Kaplan's comprehensive textbook of psychiatry, page-1174.

35. Dick, Agarwal; Marital status, alcohol dependence and GABRAZ gene evaluation for gene & environmental correlation and intervention.

36.M.A. Schuckit, Edenberg, Kalmijn, Flurray; A genome wide search for genes that relate to low level response to alcohol- alcohol clinical express 2001; 25, page-323

37. Employment frustration and alcohol dependent among labor migrants in California; Journal of immigrants and minority health 2003, vol.15.

38. Reference no. 35.

39. Oxford book of medicine, volume-II

40. Alcohol dependence in elderly- Stephen Ross in psychiatry weekly, /www. Psy.weekly/

41. Prevalence of alcohol & drug dependence in rural slum population of Chandigarh by Arun, 2007, vol.49

42. Gail Yvonne Jones etal; Alcohol dependence; International policy implementation for prison population November 2006-/ www.substance abuse, prevention and policy. Com/

43. Carl May etal; Resist to peer group pressure- An inadequate basis for alcohol education, Oxford journal of medicine volume; 8, 1999

44. D.R.Patel, D.E.Greydenus; Substance abuse a pediatric concern- Indian journal of pediatrics 1999 volume-66; 557-67

45.Adamson S.J, Todd F.C, etal; Co-existing psychiatric disorder in New Zealand among alcohol and drug using outpatients, Australia and New Zealand journal of psychiatry 40[2],164-170, 2006

46. Harrison's textbook of medicine; volume-II, page-2568.

47. A.C.Heath, K.K.Sudolz etal; Genetic &environmental contribution to alcohol dependence risk in natural twin sample- Cambridge journal of psychiatry medicine, 1997, November, vol-27

48. Petraki, Ismene, Gonzalez etal; Co –morbidity of alcoholism and psychiatric disorder-Alcohol research and health publication vol-8,1999.

49. Tripathi, Malhotra; WHO,s study on determinant of sexual risk behavior among alcohol users in diverse cultural settings- A literature review of studies on alcohol use& sexual risk behavior in India, draft report-2002.

50.P.N.Anbwani, Gilada; Dry alcohol days during festival to prevent STD& AIDS-XII international conference in AIDS, Geneva, 1998- AIDSLINE.

51. Vinod sharma; A textbook of STD& AIDS, page-438.

52. P.S.Chandra etal; High risk behavior and sensation seeking personality among alcohol users, Indian journal of medical research, Febuaray2003.

53. Wemhardt, Lance, Carey; does alcohol lead to sexual risk behavior? Finding from clinical level research, Annual review of sexual research-2000

54. Douglas, Parker etal; Epidemiology of alcohol consumption and dependence across occupation in USA, Alcohol health and research world 1992.

55. Health education network, 24 February 2005, released by WHO regional office for Europe.

56. K.J.Nenfield etal; Regular use of alcohol & tobacco in India and association with age, gender and poverty, Journal of drug & alcohol dependence, volume77, issue3, March 2005.

57. Chamberlain etal; Gender, occupation and socio-economic correlation of alcohol & drug abuse among USA rural metropolitan areas, American journal of drug & alcohol abuse, May 2004.

58. Tamil Nadu health indicators at a glance, released by Health and Family welfare department.

59. Prevalence of sexually transmitted infection in Tamil Nadu-2004, page-17, released by APAC.

60. Ray etal; released by UN office on drug and crime & Ministry ok social justice and empowerment, govt. of India.

61. Pothen etal; Chronic mental disorders among PHC attenders in Vellore, Indian journal of social psychiatry, vol.49,no.2, 119-125, 2003.

62. Edwards, P.Anderson, Babor etal(1994); Alcohol policy and the public good, Oxford university press.

63. E.J.Schechter(1986); Alcohol rationing and control systems in Greenland, Contemporary drug problems, 13, 587-620.

64. S.Casswell, J.F.Zhang(1998); Impact of liking for advertising and brand allegiance on drinking and alcohol related aggression; A longitudinal study, Addiction, 93, 1209-1217.

ANNEXURE-I

BASIC QUESTIONNAIRE

AGE	:	
MOTHER LANGUAGE	:	
MIGRANT STATUS	:	
MARITAL STATUS	:	Unmarried/married/divorcee/ Widowed / separated.
FAMILY HISTORY	:	
PEER GROUP PRESSURE	:	present/absent.
CHRONIC ILLNESS	:	present/absent
EDUCATION	:	PG/graduate/intermediate/high School /middle school/ Primary school /illiterate
OCCUPATION	:	Professional/semi-professional/clerical, Shop owners/skilled/semi-skilled/ Un-skilled /unemployed/students
INCOME	:	>3000/2000-3000/1000-2000/ 500-1000/200-499/<200

SMOKING HISTORY	:	Non-smoker/ex-smoker/
		<20 Cigarette per day/
		>20 Cigarette per day
DRUG HISTORY	:	present/absent

RISK ASSESMENT SCALE:

Age<21 years	1
Unmarried	1
> One partner	1
Recent sex outside marriage	1
Symptomatic partner	1
Total	-----

When>2 considered as positive for high risk behavior.

ANNEXURE-II

GENERAL HEALTH QUESTIONNAIRE

1) You are to concentrate in your work in your recent time? Yes/no

2) Whether you able to sleep properly without undue worries? Yes/no

3) Whether you feel that you are doing a useful work in your life? Yes/no

4) Can you make important decisions? Yes/no

5) Are you experiencing stress in recent days? Yes/no

6) Do you have the confidence to overcome the problems in life? Yes/no

7) Can you face any unexpected problems in life? Yes/no

8) Are you always in sad mood? Yes/no

9) Whether you have lost hope in life? Yes/no

10) Are you enjoying life nowadays? Yes/no

11) Whether you are doing the daily activities cheerfully? Yes/no

12) Do you feel that you are a worthlessness person? Yes/no

When there are >3 positive answers then diagnosis as psychiatric morbidity

ANNEXURE-III

AUDIT

1) How often do you have a drink?

0- Never

1- Monthly or less

2- Two to four times/month

3- Two to thrice times/week

4- >four times/week

2) How many drinks do you have on a typical day when you are drinking?

0- 1 to 2drinks

1- 3 to 4 drinks

2- 5 to 6 drinks

3-7 to 9 drinks

4- >10 or more

3) How often do you have 6 or more drinks?

0- Never

1- less than monthly

2- monthly

3- weekly

4-daily or almost daily

4) How often during the past year you were not able to control drinking?

0- Never

1- less than monthly

2- monthly

3- weekly

4-daily or almost daily

5) How often during the past year have you failed of what was expected of you due to drinking?

0- Never

1- less than monthly

2- monthly

3- weekly

4-daily or almost daily

6) How often during the past year do you need first drink in the morning?

0- Never

1- less than monthly

2- monthly

3- weekly

4-daily or almost daily

7) How often in the past year do you have guilty feeling after drinking?

0- Never

1- less than monthly

2- monthly

3- weekly

4-daily or almost daily

8) How often in the past year you were unable to remember what happened the past night?

0- Never

1- less than monthly

2- monthly

3- weekly

4-daily or almost daily

9) Have you or someone injured because of your drinking?

0- Never

2- Yes, but not in the past year

4- Yes, during the past year

10) Have a relative or friend or doctor or health worker been concerned about your drinking?

0-Never

2- Yes, but not in the past year

4- Yes, during the past year

ABBREVIATIONS

- AUDIT: Alcohol user dependence identification test
- MASTI: Michigan Alcohol screening test and identification
- CAGE : Cut down, Annoyed, Guilty, Eye opener
- MCV: Mean Corpuscular Volume
- GGT : Gamma Glutamyl Transferase
- CSW : Commercial Sex Worker
- ADH : Alcohol Dehydrogenase

ANNEXURE-IV

BASIC QUESTIONNAIRE

taJ :

jha;bkhHp :

kjk; :

fy;tpj; jFjp :

bjhHpy; :

tUkhdk; :

jpUkz epiy :

j';fs; FLk;gj;jpy; vtnuDk; kJ mUe;Jthh;fsh>
Mk; - ,y;iy

jh';fs; gf;jtr;ryk; fhydpia nrh;e;jtuh>
Mk; - ,y;iy

c';fs; el;g[tl;lhuhj;jpy; vtnuDk; kJ mUe;Jthh;fsh>
Mk; - ,y;iy

jh';fs; ePz;l ehl;fshf neha;tha; gl;Ls;sPh;fsh>
Mk; - ,y;iy

Ra gHf;f tHf;f';fs;
m) g[if gpoj;jy; Mk; - ,y;iy - Kd;dh;
M) Mk; vd;why; vt;tst[> <20 / > 20
,) nghij gHf;fk; Mk; - ,y;iy

RISK ASSESSMENT SCALE

taJ < 21 1

jpUkzk; Mfhjth; 1

xU Jizf;F nky; 1

rkPgj;jpy; jpUkz ge;jj;jpw;F btspna cly; cwt[1

ghjpf;fg;gl;l Jiz 1

GENERAL HEALTH QUESTIONNAIRE

1) rkPgfhykhf jh';fs; bra;a[k; ntiyfspy; jh';fshy; mjpf ftdk; brYj;j Kofpwjh>

Mk; - ,y;iy

2) rkPgfhykhf ftiyahy; J}f;fj;ij ,He;Jtpl;oh;fsh>

Mk; - ,y;iy

3) rkPgfhykhf c';fs; thH;f;ifapy; cgnahfkhd ntiyfspy; <Lgl;L tUtjhf czh;fpwPh;fsh>

Mk; - ,y;iy

4) rkPgfhykhf KobtLf;Fk; jpwd; cs;sjh>

Mk; - ,y;iy

5) rkPgfhykhf vg;nghJk; kd mGj;jj;jpy; cs;sjhf czh;fpwPh;fsh>

Mk; - ,y;iy

6) rkPgfhykhf jh';fs; gpur;rpidfspy; ,Ue;J kPsKoahky; ,Ug;gjhf czh;fpwPh;fsh>

Mk; - ,y;iy

7) rkPgfhykhf j';fspd; md;whl eltof;iffis mDgtpj;J czuKofpwjh>
Mk; - ,y;iy

8) rkPgfhykhf j';fshy; gpur;rpidfis vjph;bfhs;s Kofpwjh>
Mk; - ,y;iy

9) rkPgfhykhf kfpH;r;rpapd;wpa[k;. tUj;jj;JlDk; ,Ug;gjhf czh;fpwPh;fsh>
Mk; - ,y;iy

10) rkPgfhykhf jh';fs; ek;gpf;if ,He;J tUfpwPh;fsh>
Mk; - ,y;iy

11) rkPgfhykhf jh';fs; xU kjpg;gw;w eguhf j';fis vz;QqfpwPh;fsh>
Mk; - ,y;iy

12) rkPgfhykhf bghJthf vy;yhtw;wpYk; nghJkhd mst[kfpH;r;rpa[ld; ,Ug;gjhf czh;fpwPh;fsh>
Mk; - ,y;iy

AUDIT

1) eP';fs; vg;nghbjy;yhk; kJ mUe;JtPh;fs;>

0 ? vg;nghJk; ,y;iy
1 ? khjj;jpw;F xU Kiw my;yJ Fiwthf
2 ? khjj;jpw;F 2 Kjy; 4 Kiw
3 ? thuj;jpw;F 2 Kjy; 3 Kiw
4 ? thuj;jpw;F 4 my;yJ mjw;F nkyhf

2) eP';fs; Fof;Fk;nghJ vt;tst[kJ mUe;JtPh;fs;

0 ? 30 to 60ml mst[
1 ? 60 to 120ml mst[
2 ? 120 to 180ml mst[
3 ? 180 to 270 ml mst[
4 ? > 300ml mst[

3) vg;nghbjy;yhk; eP';fs; 180ml mstpw;F nky; kJ mUe;JtPh;fs;/

0 ? vg;nghJk; ,y;iy
1 ? khjj;jpw;F 1 Kiwf;Fk; Fiwthf
2 ? khjj;jpw;F 1 KiwnaDk;
3 ? thuj;jpw;F 1 KiwnaDk;
4 ? jpdKk;

4) eP';fs; brd;w tUlj;jpy; vj;jid Kiw fl;Lg;ghoy;yhky; kJ mUe;jpdPh;fs;

0 ? vg;nghJk; ,y;iy
1 ? khjj;jpw;F 1 Kiwf;Fk; Fiwthf
2 ? khjj;jpw;F 1 KiwnaDk;
3 ? thuj;jpw;F 1 KiwnaDk;
4 ? jpdKk;

5) brd;w tUlj;jpy; vj;jid Kiw eP';fs; kJtpdhy; flik jtwpdPh;fs;

0 ? vg;nghJk; ,y;iy
1 ? khjj;jpw;F 1 Kiwf;Fk; Fiwthf
2 ? khjj;jpw;F 1 KiwnaDk;
3 ? thuj;jpw;F 1 KiwnaDk;
4 ? jpdKk;

6) brd;w tUlj;jpy; vj;jid Kiw eP';fs; fhiy vGe;jt[ld; kJ mUe;jpdPh;fs;

0 ? vg;nghJk; ,y;iy
1 ? khjj;jpw;F 1 Kiwf;Fk; Fiwthf
2 ? khjj;jpw;F 1 KiwnaDk;
3 ? thuj;jpw;F 1 KiwnaDk;
4 ? jpdKk;

7) brd;w tUlj;jpy; vj;jid Kiw eP';fs; kJtpdhy; Fw;w czh;r;rpf;F MshfpdPh;fs;

0 ? vg;nghJk; ,y;iy
1 ? khjj;jpw;F 1 Kiwf;Fk; Fiwthf
2 ? khjj;jpw;F 1 KiwnaDk;
3 ? thuj;jpw;F 1 KiwnaDk;
4 ? jpdKk;

8) brd;w tUlj;jpy; vj;jid Kiw eP';fs; new;W ,ut[ele;jij kwe;jPh;fs;

0 ? vg;nghJk; ,y;iy
1 ? khjj;jpw;F 1 Kiwf;Fk; Fiwthf
2 ? khjj;jpw;F 1 KiwnaDk;
3 ? thuj;jpw;F 1 KiwnaDk;
4 ? jpdKk;

9) vj;jid Kiw c';fSf;nfh my;yJ gpwUf;nfh kJtpdhy; tpgj;J Vw;gl;lJ/

0 ? vg;nghJk; ,y;iy
2 ? Mk; Mdhy; brd;w tUlk; ,y;iy
4 ? Mk;/ brd;w tUlk;

10) c';fSf;F Fog;gHfj;ij epWj;j vtnuDk; mwpt[iu tH';fpa[s;shh;;fsh>

0 ? vg;nghJk; ,y;iy
2 ? Mk; Mdhy; brd;w tUlk; ,y;iy
4 ? Mk;/ brd;w tUlk;